

irides hazel, and the legs and feet slate-blue; but the Wilson's Phalaropes had the bill and legs black and the irides brown. A female of the last-named weighed $2\frac{1}{2}$ ounces.

The measurements in inches of a male and female of each species are here given:—

	Length.	Extent.	Wing.	Tail.	Bill.	Tarsus.	Naked leg to end of middle toe.
<i>Phalaropus wilsoni</i> , ♀ ..	9	16	5	2	$1\frac{3}{8}$	$1\frac{1}{4}$	3
<i>Phalaropus wilsoni</i> , ♂ ..	8	14	$4\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{4}$	1	$2\frac{5}{8}$
<i>Phalaropus hyperboreus</i> , ♀	$7\frac{1}{4}$	13	$4\frac{1}{2}$	2	$\frac{7}{8}$		
<i>Phalaropus hyperboreus</i> , ♂	7	$12\frac{1}{3}$	4	$1\frac{7}{8}$	$\frac{7}{8}$		

In addition to the Phalaropes, great numbers of Stints (*Tringa minutilla*) and a single Hudsonian Godwit (*Limosa hudsonica*) passed; in fact, such an invasion of birds has not been seen here since the memorable flight of Buzzards (*Buteo swainsoni*) in 1890.

I obtained the above-mentioned Godwit, which was a female in transition plumage, and the only specimen I have ever seen in the north-west. Of this bird, Coues says: "Not noted W. of the Rocky Mts., and apparently not common anywhere in the U.S."

Terry, Montana,
Sept. 1st, 1899.

VII.—*An Ornithological Expedition to the Zambesi River.*

By BOYD ALEXANDER, F.Z.S.

(Plate I.)

[Continued from 'The Ibis,' 1899, p. 583.]

72. CRATEROPUS JARDINII (Smith).

We first met with this bird near Zumbo, on the right bank of the river. It consorted with *C. kirki*, but was not nearly so plentiful, and was easily recognizable by its much larger size. Unlike the latter, the specimens shot at the end of November were in a moulting condition, the new feathers of the nape and mantle having dark-brown centres.

The cry is louder and more harsh, if anything, than that of *C. kirki*.

73. CRATEROPUS KIRKI (Sharpe).

Well distributed along the river, especially in more or less open country dotted over with small thickets and clumps. Always observed in parties of from five to six birds, and never very far distant from water, while the reed-beds bordering the river became their roosting-places for the night.

The note of this bird is peculiar, like that of the Magpie, at first very harsh, then becoming soft and mellow. When several get together they are very noisy and quarrelsome, causing the little valleys to ring with a chorus of cries which closely resemble those made by a party of Jackdaws. A female shot at the end of October had the sexual organs in a breeding condition.

In immature birds the feathers of the mantle and lesser wing-coverts are tipped with whitish brown, while the whole of the underparts are washed with a light ochre, becoming more distinct on the flanks, belly, and under tail-coverts.

Adult ♂ (near Tete). Wing 3·72 inches, culmen 0·73, tail 4·2. Iris pearl-colour, legs and feet lead-colour.

Adult ♀ (near Zumbo). Wing 4 inches, culmen 0·8, tail 4·2. Iris orange-red, legs and feet lead-colour.

74. PYCNONOTUS LAYARDI (Gurney).

Very common. Open ground and the outskirts of villages are chiefly frequented, while during excessive heat the bird will haunt belts of large shady trees that overhang the river, or some small watercourse thickly covered in with trees. The song of this Bulbul consists of two portions: the first is given out with deliberation, and the last with rapid execution, the rendering of which might well be described as being "gobbled" off. At sunset this bird will mount to some high tree and pour out its somewhat monotonous song, and keep on uttering it until the light has quite vanished. In the pairing-season its singing becomes more varied, a few rather sweet whistling notes being introduced. Furthermore, a portion of the song is often uttered when on the wing. During the greater part of the year this bird is gregarious. While at Durban, in June, we observed numbers

in flocks outside the town, while towards evening they would all sing together from the tops of high trees, after the manner of Starlings.

On the approach of the breeding-season, in December, this Bulbul becomes very noisy, and there is no bird then more solicitous of its young.

On Christmas Day we found some youngsters, fully fledged, sitting in a row on a slender bough, and paying no heed to the anxiety exhibited by their parents, which were beating about in the bushes close by, and uttering the whole time their alarm-notes, a series of sharp "chucks," accompanied with a rapid opening and closing of their wings.

75. ANDROPADUS OLEAGINUS (Peters).

Not common, and observed near the river from Zumbo onward. Towards the middle of November this species was breeding, and the females alone appeared to undertake the task of incubation, for the specimens shot invariably turned out to be males.

Though this bird may often be observed in company with *Chlorocichla occidentalis*, it can readily be distinguished from that species by its smaller size.

The song of the male is soft and musical, uttered in a deliberate manner, and might be described by the syllables "tu-tu-tui-tui," several times repeated.

Adult (Zumbo). Iris lemon-yellow. Length 7.6 inches, wing 3.65.

76. CHLOROCICHLA OCCIDENTALIS (Sharpe).

The first time we saw this beautiful Bulbul was at Mesanangue, our first regular camp, about 30 miles above Tete. We obtained there only one specimen, but the further we went up the river the more noticeable did this species become (especially near Chicowa and about Zumbo), it being, however, locally distributed, and so much so that it was not unusual to find the individuals of a certain locality congregated in one small well-wooded valley and consorting with Yellow-vented Buleuls (*Pycnonotus layardi*). When in thick undergrowth they utter loud seolding notes on

the approach of danger. Besides ground-insects, their food consists to a great extent of fresh buds of various trees, especially those of the acacia, upon the topmost branches of which they may be observed busily and silently feeding off the young shoots.

Breeding commences towards the middle of November. On our return down the river, after leaving Chicowa, we discovered a nest on January 27th, and, while breakfasting near the spot, we had ample time to identify the birds. The nest was placed on one of the spreading branches of a thorny bush. It was very fragile and small for the size of the bird: it was constructed of dried bents, with somewhat finer bents for a lining. It contained two eggs (probably the second lay), which were much incubated.

Description of the Eggs:—Ground-colour dirty white, spotted, blotched, and clouded with olive-brown, with underlying markings of a greenish brown and more thickly round the larger end. Average measurements .97 inch by .65.

77. PHYLLOSTROPHUS STREPITANS (Reichen.).

Not found on the lower reaches of the river. We first met with the bird about 50 miles below Zumbo, where it was rather plentiful in the thick undergrowth of the woods near the river. We generally observed it in parties, but in pairs towards the end of December, when the specimens obtained had the sexual organs in breeding condition. At that time these birds threw off their usual skulking habits, and became bold and very noisy, answering one another from different parts of the wood with their harsh "churr, churr" notes, uttered several times in succession, and which, on one's approach, would assume a scolding expression.

78. EREMOMELA HELENORÆ, sp. nov.

Eremomela helenoræ Alexander, Bull. B. O. C. viii. p. xlvi.

Most nearly allied to *E. polioxantha*, but smaller in size, and differing in the following particulars: the feathers of the rump are olive-yellow, and not ashy-grey washed with olive; secondaries tipped with white; axillaries ashy white, not

yellow ; under tail-coverts white ; feathers of thighs dusky, tipped with white. The tail is considerably shorter than in *E. polioxantha*.

Adult ♀. Upper mandible brown, lower horn-colour ; tarsus black ; iris orange. Total length (measured in flesh) 3·56 inches, culmen 0·5, wing 2·1, tail 1·18, tarsus 0·6.

Hab. Mesanangue, Zambesi river.

It was quite by accident I obtained this bird. My native "boy," who was anxious to learn how to shoot, begged hard one afternoon to be allowed to take out one of my small guns. He afterwards returned to camp highly delighted, having shot this little *Eremomela*, which he had observed in some thick bushes on rocky ground close to the river.

79. EREMOMELA USTICOLLIS (Sundev.).

By no means plentiful, and only observed on the higher reaches of the river from Zumbo onward, frequenting the tops of tall acacia-trees in pairs, and generally in company with other small insect-feeding birds.

The male has a pleasing little song.

Adult. Total length (measured in flesh) 4·34 inches. Iris lemon-yellow ; upper mandible brown, lower horn-colour ; legs and feet yellowish flesh-colour.

The range of this species extends from the Transvaal to Zumbo, on the Zambesi, on the east, and Damaraland on the west.

80. CAMAROPTERA BREVICAUDATA (Rüpp.).

By no means plentiful, frequenting bush-grown localities and the outskirts of woods. Our three specimens were procured at Zumbo. In the pairing-season this bird produces a whirring sound with its wings when travelling from branch to branch. It is chiefly resorted to by the male as a means of attracting the female to its side when the pair are threading their way through thick undergrowth, and appears to take the place of a call-note.

This bird is unusually silent, and never once did we hear it give vent to any note.

Adult. Bill black ; iris orange ; legs and feet flesh-colour.



H. Gronvold del et lith.

Motern Bros. imp.

1. SYLVIELLA PALLIDA
2. " MINIMA.

81. CAMAROPTERA SUNDEVALLI (Sharpe).

We obtained our two specimens near Tete.

C. brevicaudata appears to take its place on the higher reaches of the river.

Adult ♂. Total length (measured in flesh) 4·68 inches, wing 1·95. Iris orange; upper mandible brown, lower light horn-colour; legs and feet flesh-colour.

82. SYLVIELLA PALLIDA. (Plate I. fig. 1.)

Sylviella pallida Alexander, Bull. B. O. C. viii. p. xlviiii.

This species is closely allied to *S. minima* Grant (see below, p. 156), which in my original description of the present species (*l. s. c.*) I erroneously called "*S. leucopsis* Reichen." Under these circumstances I have thought it advisable to figure both species in the accompanying Plate for comparison. The British Museum possesses a male and female of *S. minima* from the island of Manda, B. E. A., with which we have compared our specimens. From these birds the Zambesi specimens differ in the following particulars:—The upper parts are uniform grey, not washed with greenish; superciliary stripes, chin, throat, cheeks, and fore-neck, as well as the middle of the breast and belly, are white, tinged with buff, the sides and flanks more distinctly washed with the same colour. The bill, which is larger, is black, not brown.

Adult. Culmen 0·45 inch, wing 2·3, tail 1·0, tarsus 0·75. Iris straw-colour; legs and feet light brown.

Note.—We seldom observed this elegant *Sylviella*. It is shy and retiring by nature, keeps much to thick undergrowth coating stony ground near the river, and is particularly fond of frequenting acacia-growth, from which it seems to gather an abundant supply of insect-food. It is interesting to watch this bird threading its way through the maze of twigs and branches, always examining one bush thoroughly before passing on to the next, now hanging Tit-like from some pendent twig, the next moment to run in mouse-fashion along the branch, looking very like a miniature Nuthatch. It is a silent bird, but now and again, when a pair are together, the male will keep in touch with the female by uttering a

little long-drawn cry, weak and mouse-like, while, when excited, it will give out a series of notes, which might be rendered by the syllables "tiz, tiz, tiz," rapidly repeated. We obtained a good series along the Zambesi, the first specimen at Senna and the last near the Kafue river.

In an immature specimen (Tete, *Livingstone*), which seems to be referable to *S. pallida*, the superciliary stripes, sides of face, and underparts are distinctly washed with pale rufous-buff, and the bill is light brown.

83. *CHLORODYTA NEGLECTA*, sp. nov.

Chlorodyta neglecta Alexander, Bull. B. O. C. x. p. xvii.

It appears that this species has hitherto been overlooked. It is the south-eastern representative of *Chlorodyta flavida* (Strickl.), from which it differs in the following points:—Feathers of the rump are uniform yellowish green, like the back; throat, cheeks, and under tail-coverts silky white; under wing-coverts white; while the feathers of the thighs are greyish white. The British Museum possesses adult specimens from Kingwilliamstown, Elands Post, the Makalaka country, and from the Cheringoma district in Mozambique. These correspond with our birds from the Zambesi.

Of *C. flavida* there is also a good series, obtained from Northern Damaraland and the Ovaquenyama country lying directly to the east of it.

In both species some individuals have the head and nape of an entirely slaty grey, others have only the forehead and sinciput of that colour, while in several the sides of the crown and of the nape show signs of becoming grey. In our adult specimens of *C. neglecta*, freshly moulted and killed between July and December, only the forehead and sinciput are grey. On the other hand, a male shot in January has the whole crown and nape of that colour, and from its worn plumage it is evidently an old bird and had done breeding. The grey on the head and nape, therefore, is a sign of age, and is probably assumed after the second moult.

The area of this species is South-eastern Africa, ranging into Mozambique, while that of *C. flavida* is Northern Damaraland and the Ovaquenyama country.

Adult ♂ (Zambesi). Total length (measured in flesh) 4·68 inches, wing 2·0, culmen 0·4, tail 1·98. Bill black; iris orange; legs and feet brownish flesh-colour.

Adult ♀ (Kingwilliamstown). Wing 1·9 inch, culmen 0·48, tail 2·0.

84. PRINIA MYSTACEA (Rüpp.).

Fairly common. At the end of August small flocks of young birds in their first plumage, but in the process of moult, were frequently observed. On August 26 a party of these birds visited the confines of our camp, and with their inordinately long tails, which were raised ever and anon to a sharp angle with their bodies, they reminded us very forcibly of a band of Long-tailed Tits as they flitted from one low bush to another, always keeping close to the ground in their journey, and only on being disturbed would they fly up to the top of some tall tree and utter harsh little notes of alarm.

In November and December we obtained specimens in adult plumage.

Immature ♂ (August 26). Total length (measured in flesh) 5·7 inches, wing 1·9, tail 3·2. Iris orange; bill black, horn-colour at tip; legs and feet flesh-colour.

Adult ♂ (November 13). Total length (measured in flesh) 5·0 inches, wing 1·86, tail 2·3. Iris orange; bill black; legs and feet flesh-colour.

Adult ♀ (July 19). Wing 1·8 inch, tail 2·1. Iris orange; bill black; legs and feet flesh-colour.

The last-named specimen had organs in breeding condition. The breeding-season would therefore appear to be from May onward. In August the young of the year, easily recognizable by their long tails, are abroad, and by the end of December they have practically assumed the adult plumage, while in the second year breeding takes place.

85. CISTICOLA LUGUBRIS (Rüpp.).

Only once met with at Shupanga on July 7. We had some difficulty in obtaining any of these handsome little Cisticolas, which were then in full breeding-plumage. They

kept very persistently to the long grass, constantly tantalizing us by getting up at our feet, to drop again into the thick weed a few yards ahead, thereby making the shooting of them no easy matter. The male bird has a screechy song, that becomes scolding in tone on the observer approaching its haunts.

On dissection a male had the sexual organs much developed, while one of the birds observed had a piece of nesting-material in its beak.

Adult ♂ (crown pale rufous). Wing 2·3 inches, tail 2·4. Iris yellow; upper mandible dark brown, lower horn-colour; legs and feet yellowish flesh-colour.

Adult ♀ (crown streaked). Wing 2·0 inches, tail 2·1.

86. *CISTICOLA SUBRUFICAPILLA* (Smith).

Well distributed over low-lying country that is covered with thick grass and high weed. The male bird has rather a pretty little song, which it utters from the top of some prominent grass-plant, the next minute to pop down out of sight into the thick weed. The specimens we obtained in September are evidently immature birds still in winter plumage; all the feathers are much abraded, the upper parts are light fulvous brown, the feathers of the mantle and scapulars being broadly streaked with dark brown, while the colour of the crown and nape is very pale and almost uniform with the mantle. In one specimen the feathers of the crown are beginning to assume a dark rufous. On the other hand, an adult female killed in January has the upper parts darker and more ashy grey in appearance, the brown streaks to the feathers of the mantle and scapulars hardly noticeable, while the crown and nape are a uniform dark rufous.

Immature ♂ (September). Wing 2·5 inches, culmen 0·45, tail (worn) 2·5. Iris hazel; upper mandible light brown, lower light horn-colour.

Immature ♀ (September). Wing 2·0 inches, culmen 0·4, tail (worn) 2·0.

Adult ♀ (January). Wing 2·1 inches, culmen 0·4, tail 2·0. Upper mandible dark brown, lower horn-colour.

87. *CISTICOLA CHINIANA* (Smith).

In life this *Cisticola* is easily distinguishable from *C. sub-ruficapilla* by its larger size, more robust appearance, and somewhat darker plumage, while both its alarm-note and song in the pairing-season are a good deal louder in tone.

In habits it differs little from other members of the genus, being found living together in small colonies in favourite localities. When the breeding-season approaches these colonies split up and scatter over a greater area of country. We found this species breeding in January, and, though we obtained a number of male birds, the females were seldom noticed, a fact that seems to demonstrate that the female alone undertakes the task of incubation.

Like the majority of the *Cisticolas*, this bird in the pairing-season shakes off a good deal of its skulking reserve, is more frequently seen, and becomes very amorous of its mate. From the top of some high bush or tree he will fall upon her, singing all the while a little carolling song, his flight resembling that of our Tree-Pipit as he descends singing to earth.

Adult ♂ (January). Wing 2·6 inches, culmen 0·5, tail 2·6. Iris light orange; upper mandible brown, lower horn-colour.

Adult ♀ (November). Wing 2·48 inches, culmen 0·5, tail 2·5. Soft parts as in male.

88. *CISTICOLA MUELLERI*, sp. nov.

Cisticola muelleri Alexander, Bull. B. O. C. viii. p. xlix.

This species is closely allied to *C. dodsoni* from Somaliland, but is rather larger and has no broad subterminal band of black on the tail-feathers, which, with the exception of the two centre ones, are a uniform brown, having narrow dusky subterminal markings under certain lights on their inner webs only, while the broad white tips found in its near ally are absent.

Adult ♀ (organs in breeding condition). Total length (measured in flesh) 3·84 inches, wing 1·82, culmen 0·4, tail 1·6. Iris orange; bill, legs, and feet flesh-colour.

Named in memory of Mr. Müller, a comrade in our expedition, who died of dysentery at Tete.

Our attention was attracted to this little Grass-Warbler by its habit of frequenting the tops of tall trees and uttering a few plaintive and metallic notes.

Hab. Mesanangue, Zambesi river.

89. *CISTICOLA CINERASCENS* (Heugl.).

Found below Tete, frequenting thick grass near the river. The song is thin and screechy.

Adult ♀ (*winter plumage*). Wing 2·0 inches, culmen 0·4, tail 2·3. Iris straw-colour; upper mandible brown, lower horn-colour.

90. *CISTICOLA ERYTHROPS* (Hartl.).

Not common, and observed either singly or in pairs on the higher reaches of the river. Unlike other Cisticolas, it keeps much to the belts of fish-cane bordering the water, and in habits closely resembles a Reed-Warbler.

Adult (November 27). Total length (measured in flesh) 5·2 inches, wing 2·2, tail 2·3. Iris hazel; upper mandible brown, lower horn-colour; legs and feet flesh-colour.

91. *PINARORNIS PLUMOSUS* Sharpc.

It was at Mesanangue, a small village some 30 miles above Tete, that we had the good fortune to find examples of this rare species, hitherto only known from the type in the British Museum (see Cat. B. vii. p. 401, pl. ix.). A pair were observed, and these frequented a bush-grown kopje near the river and bordering a mealie-field. It was towards evening when we first discovered them busy feeding among the dried-up corn-stalks, and their remarkable appearance soon riveted our attention. On being approached they retreated quickly towards their favourite haunt among the clefts of some large rocks. Both in appearance and action they reminded us very much of our Blackbird. After obtaining the female the male seldom showed himself, and then only to run back again into his rocky retreat on our approach. Although we searched carefully every nook and hollow we failed to drive him out; he must have retreated into some inaccessible hole

in the great slabs of rock. Neither bird uttered any note, while flight was seldom resorted to, the wings now and again being simply opened with a jerky movement while running, but sufficiently to show the remarkable white spots on the inner webs of the primaries. The favourite haunt of this species appears to be rocky places overgrown with bush, close to running water. The next day we were unable to continue our search after the male bird, as the expedition moved on, greatly to our disappointment.

Adult ♀. Total length (measured in flesh) 9·9 inches, wing 4·43. Iris hazel. Contents of stomach, beetles and small portions of lizards and grasshoppers.

92. LUSCINIOLA GRACILIROSTRIS (Hartl.).

This species is the only resident Reed-Warbler in the Zambesi region. From the mouth of the Shiré river (where the bird is also a resident) and onward along the Zambesi it may be found on the islands overgrown with fish-cane, and in extensive reed-beds, but it cannot be called common.

On July 25, near Senna, we discovered a nest, ready for eggs, built between three stems of fish-cane and about six feet from the ground. It was a compact structure of a cup-shaped form, composed of fine dried reed-blades and lined with grass-stalks.

The song of this Reed-Warbler is identical with that of *Calamocichla brevipennis* (Ibis, 1898, p. 83), but the alarm-note, a harsh "churr," is somewhat louder.

The song is generally to be heard towards evening, and especially after rain has fallen, when the favourite localities in the reed-beds become filled with their melodious notes.

Immature ♀. Total length (measured in flesh) 5·56 inches, wing 2·28. Iris brown; upper mandible brown, lower light horn-colour; legs and feet lead-colour.

Adult ♂. Total length (measured in flesh) 6 inches, wing 2·63. Iris hazel; upper mandible brown, lower horn-colour, brownish at tip; legs and feet brownish black; throat orange.

Adult ♀. Wing 2·4 inches: upper mandible brown, lower yellowish horn-colour.

93. *LOCUSTELLA FLUVIATILIS* (Wolf).

It is interesting to have obtained this European Warbler so far south as the Zambesi, since it was hitherto only known to winter in the north of Africa.

Our single specimen was shot on Christmas Day in a thick belt of reeds near the river. It was silently threading the fish-cane in company with several Reed-Warblers (*Luscinola gracilirostris*).

The exact locality was 30 miles above Zumbo, on the river.

The specimen obtained was a female, iris brown.

94. *ACROCEPHALUS ARUNDINACEUS* (Linn.).

It was towards evening on Nov. 21, after a storm, that we first observed near Zumbo the Great Reed-Warbler.

As is often the case in the Tropics after rain, the reed-beds suddenly became alive with birds, chiefly Reed-Warblers and Weavers, and though dusk had almost fallen these birds found time to rejoice, making their presence known by their voices, each in its separate key.

The gruff croak of the Great Reed-Warbler would come from somewhere in the middle of the thick reeds, and this was but a prelude to its song, for the next moment the bird would suddenly appear, sealing gracefully some prominent reed in order to gain its top, whence to utter its loud Sedge-Warbler-like song, while in the lowest depths the Weavers, without ever stopping to take breath, poured out their running voluble chatter. And though the silence of the lonely reed-beds was marred by all these bird noises, it was at times enlivened by the exquisite song of *Luscinola gracilirostris*.

95. *ACROCEPHALUS PALUSTRIS* (Bechst.).

Adult ♂ (Dec. 23, near Zumbo). Total length (measured in flesh) 5·4 inches, wing 2·5. Iris brown; upper mandible brown, lower horn-colour; legs flesh-colour; feet greenish brown, pads yellow; throat orange.

Adult ♂ (Dec. 26). Total length (measured in flesh) 5·1 inches, wing 2·56.

96. *ACROCEPHALUS BÆTICATUS* (Vieill.).

We obtained our first specimen near Zumbo on Nov. 21. It appears not to be a resident on the Zambesi.

The song of the male is very screechy in tone, and resembles that of our Reed-Warbler (*A. streperus*).

Adult (Dec. 3). Total length (measured in flesh) 4·5 inches, wing 2·3. Iris hazel; upper mandible brown, lower pinkish horn-colour; legs and feet greenish.

97. *ACROCEPHALUS PHRAGMITIS* (Bechst.).

First obtained on Dec. 3, near Zumbo, while two weeks later (Dec. 17) we found quite a number of these birds in the thick undergrowth near the river. They were singing lustily, reminding us very much of the reed-beds at home.

98. *HYPOLAIS ICTERINA* (Vieill.).

A female specimen shot at Zumbo on Dec. 14.

Adult ♀. Total length (measured in flesh) 5·6 inches, wing 3. Iris brown; upper mandible brown, lower yellowish horn-colour; legs and feet slate-colour.

99. *PHYLLOSCOPUS TROCHILUS* (Linn.).

A specimen shot on Nov. 9 at Zumbo.

From my notebook (Nov. 13):—"The rain of the last two days has made a wonderful difference in the singing of the birds. The thickets have like magic burst out into leaf, while after a shower they are filled with bird-voices. With this sudden breaking-out of leaf, the Willow-Wren has appeared and also the Garden-Warbler. The song of the former is loud and strong; in fact everything points to the near approach of an African spring."

100. *SYLVIA HORTENSIS* (Bechst.).

One obtained on Nov. 12 at Zumbo.

101. *ERYTHROPYGIA ZAMBESIANA* (Sharpe).

Sir John Kirk obtained the type of this species at Tete, below which it appears not to occur, for it was not till after leaving that place that we procured our first specimen. This graceful little Chit-Thrush is not at all common, its distribution being decidedly local.

It does not affect thick woods, but rather hilly ground of a stony nature that is sparsely covered with brushwood. We obtained the majority of specimens at Zumbo in December, which was then the breeding-season, the male being more often noticed. It had a habit of sitting on the tops of trees and the prominent branches of saplings that grew out of the undergrowth, and from these look-out posts would pour out its by no means unpleasant song, with especial frequency after rain had fallen.

A male obtained in August in fresh plumage has the blackish streaks on the fore-neck and chest less well defined than in birds obtained in November and December, when the streaks to the feathers have become thicker and more arrow-shaped, imparting to the breast a very streaky and dark appearance, the broad sandy-rufous edgings to the secondaries are narrowed through abrasion, while the feathers of the crown have dark shaft-lines. In the breeding-season the feathers, especially of the breast, become much worn. The very rufous colour of the tail and rump is conspicuous in flight and affords no chance of mistaking the bird for any other.

Adult ♂ (Aug. 15). Total length (measured in flesh) 5·8 inches, wing 2·6, culmen 0·5, tail 2·7. Iris hazel; bill dark brown; base of lower mandible light horn-colour; legs and feet brownish flesh-colour.

Adult ♂ (Nov. 8). Total length (measured in flesh) 5·6 inches, wing 2·65, culmen 0·54, tail 2·72.

Adult ♀ (Nov. 16). Total length (measured in flesh) 5 inches, wing 2·4, culmen 0·41, tail 2·4.

Adult ♀ (Dec. 16). Total length (measured in flesh) 5·1 inches, wing 2·45, culmen 0·42, tail 2·5.

102. ERYTHROPYGIA QUADRIVIRGATA (Reichen.).

Only one specimen obtained and observed of this rare Chat-Thrush. We procured it near the Kafue river in thick woodland. Owing to the shy nature of the bird, we experienced much difficulty in getting within gunshot.

Adult ♀ (Jan. 1, 1899). Feathers much worn. Total length

(measured in flesh) 6.55 inches, wing 3.1. Iris hazel; bill black; legs and feet flesh-colour.

103. *CICHLADUSA ARCUATA* (Peters).

Near Senna, in bush-grown country.

Adult ♀. Iris straw-colour; bill black; legs and feet slate-colour. This bird must be uncommon, since we never met with it again after leaving Senna.

104. *COSSYPHA NATALENSIS* (Smith).

Where the preceding species is present *C. natalensis* appears to be absent.

This bird is decidedly rare along the Zambesi. Our single specimen was obtained close to the mouth of the Kafue river, in December, its sexual organs being in a breeding condition.

The mantle is largely washed with orange, and the wing-coverts are a bright bluish grey.

Total length (measured in flesh) 6.7 inches, wing 3.45. Legs and feet brown.

105. *COSSYPHA HEUGLINI* (Hartl.).

The scarcity of singing-birds in the Zambesi woods is remarkable. There is, however, a noteworthy exception, that of this beautiful red Ground-Thrush, the song of which seems to gain in intensity from the surrounding silence. In the Zambesi region this species commences to breed towards the end of December, the month when the first fall of rain is generally experienced. The male bird is then in full song, but at other times of the year the singing is reduced to a short string of babbling notes. The song is rich and mellow, the long-drawn opening notes increasing in volume, suddenly to break off into a string of bubbling sounds that turn the next moment to soft volubility, the voice being raised in pitch till it becomes like a faint whisper, just as if the singer was soliloquizing.

This *Cossypha* frequents thick undergrowth, waste land where there are bush-grown dells holding water or reed-beds bordering the river. It is a shy bird and keeps much to the bottom of the tangled brushwood, decoying the listener on

with occasional snatches of song, but never allowing him to come to close quarters. At another time it will glide surreptitiously from a thick retreat to the next impenetrable spot, to dart away, if suddenly startled, with a twisting flight, its bright-coloured breast catching for an instant the sunlight.

Regarding its distribution along the river, we observed the first individual at Chicowa, and from thence, as we journeyed on, it became more plentiful, especially in the neighbourhood of Zumbo.

The female has no song, but utters now and again a soft whistle. In point of size she is considerably smaller than the male.

Three of our specimens have the following measurements :

Adult ♂. Total length (measured in flesh) 7·8 inches, wing 3·9, tail 3·8, culmen 0·65.

Adult ♂. Total length (measured in flesh) 7·64 inches, wing 3·8, tail 3·65, culmen 0·06.

Adult ♀. Total length (measured in flesh) 7 inches, wing 3·3, tail 3·4, culmen 0·54.

106. DAULIAS PHILOMELA (Bechst.).

We first observed the Thrush-Nightingale at Zumbo on Dec. 17, and, though not common, we met with it now and again in the reed-beds and swampy places on our way up to the Kafue river. We remember having heard on one occasion (Dec. 22) the bird sing, and the notes appeared to us quite as rich and mellow as those of our Nightingale.

Adult ♂. Total length (measured in flesh) 5·9 inches, wing 3·2. Iris brown; bill brown; base of lower mandible light horn-colour; legs and feet brown.

Adult ♀. Total length (measured in flesh) 6 inches, wing 3·5, soft parts as in male.

107. TURDUS LIBONYANUS (Smith).

Adult ♂ (near Senna, July 30, 1898). Total length (measured in flesh) 9·4 inches, wing 4·3, culmen 0·7. Iris black; bill light orange; legs and feet light orange-yellow.

Adult ♀ (Chishomba, Oct. 21, 1898). Total length

(measured in flesh) 8·6 inches, wing 4·3, culmen 0·7. Iris red; bill orange; legs and feet yellowish flesh-colour.

A very shy bird, frequenting ground underneath thick undergrowth. The song is pretty and of a babbling nature.

108. *SAXICOLA FALKENSTEINI* (Cab.).

A single specimen near Tete on Aug. 17. When observed, the bird was busy catching flies after the manner of a Fly-catcher.

Adult ♀. Total length (measured in flesh) 5·4 inches, wing 2·9. Iris hazel; bill black; legs and feet brown.

By the discovery of this species on the Zambesi, its range has been considerably increased. Dr. Fischer obtained it on the Victoria Nyanza in 1885, while the only specimen in the British Museum is from Mpapwa, in the Ugogo region.

109. *SAXICOLA GENANTHE* (Linn.).

A male in winter plumage obtained at Zumbo on Jan. 16. We are unable to find any previous record of this Wheatear being found in winter so far south as the Zambesi.

110. *SAXICOLA LIVINGSTONII* (Tristram).

An adult male obtained on Aug. 9 at Tete out of a party of four. Another male at Mesanangue on Aug. 18, and a young bird in its first plumage, shot beyond Zumbo on Dec. 28.

Adult ♂. Total length (measured in flesh) 5·55 inches, wing 3·4. Iris, bill, legs, and feet black.

In our two males the amount of black on the crown, sides of neck, and breast varies considerably.

111. *THAMNOLEA ARNOTTI* (Tristram).

Towards evening on July 27 we landed on the left bank of the Zambesi about twenty miles beyond Senna. The nature of the locality was flat, the foreground near the river covered with high dead grass, which in the distance gave way to thin undergrowth and scattered deciduous trees that became more numerous at the foot of a chain of hills.

Just as dusk was closing in we caught sight of a party of

this uncommon little Chat-Thrush, the white patches on their shoulders at once riveting the eye, as they journeyed in perfect silence from one tree to another. This bird has an airy flight and resembles the Tree-Creeper in the way in which it flies on to a branch, the tail being pressed tightly against the bark, and from continual contact the tail-feathers after a time become worn very short.

Unfortunately, we never met with this interesting bird again. Out of this little party we procured an adult female which has the feathers of the throat, cheeks, and fore-neck white, mottled with black tips. These tips are, however, disappearing, and the parts then become entirely white in fully adult females.

Several of the feathers of the fore-neck are entirely white on one side of the shaft only, while in others the white is in the process of gradually extending from the shaft over the whole of the remaining brown portion of the feather. A single feather on the crown also shows this change.

This condition of plumage clearly demonstrates that, in very old females, not only the above-mentioned parts become entirely white, but also the crown of the head.

112. *MUSCICAPA GRISOLA* (Linn.).

Frequently observed from November onward.

113. *MUSCICAPA CERULESCENS* (Hartl.).

Not a common bird, and of a retiring nature, keeping much to the monotonous woods of *Copaifera mopane*.

The breeding-season is towards the end of November, when the feathers become much worn, the grey edgings to the primaries, secondaries, and tail-feathers, very distinct in specimens obtained in August, having disappeared through abrasion.

Adult ♂. Total length (measured in flesh) 5·6 inches, wing 3·1, culmen 0·5. Iris hazel; upper mandible black, base of lower light horn-colour; legs and feet dark slate-colour.

Adult ♀. Total length (measured in flesh) 5·4 inches, wing 2·9, culmen 0·4. Bill black, soft parts as in male.

In several of our specimens the lower mandible is a light

horn-colour, while in others (presumably older birds) the bill is entirely black.

114. *PLATYSTIRA PELTATA* (Sundev.).

Rare. A pair observed and obtained for the first time at Zumbo on Nov. 12.

Adult. Total length (measured in flesh) 4.96 inches, wing 2.6. Iris black; eye-wattle bright coral; bill black; legs and feet lead-colour.

115. *BATIS MOLITOR* (Sharpe).

Fairly well distributed wherever the woods are thick. From August to the end of October they were observed in small parties, consisting of either all males or females, the sexes appearing to keep apart during the non-breeding season.

The song given out by both male and female of this species is somewhat remarkable and at once arrests attention. A clear flute-like note in a high key is first uttered, followed in succession by three others, each descending a tone in scale, the rendering of which is very true, while between the notes a distinct interval is made. The call-note, which is frequently resorted to on the approach of the pairing-season, is a short mellow whistle, while, on being alarmed, the bird will give out a hoarse little croak that is decidedly ventriloquial in expression. When the trees are in full leaf, which they examine diligently for insects, these birds, as they journey over open ground in order to gain the next thick-leaved tree, make a sharp whirring noise with their wings, which can be heard at a considerable distance.

In some of our female specimens the bluish-grey feathers of the mantle have white centres, which impart to the back a very mottled appearance, while in other examples the upper parts resemble those of the adult males; and this is irrespective of dates. The chestnut band on the breasts of those with the mottled backs is also more confined than in fully adult birds. It therefore appears that this species does not assume the adult plumage till after the second moult.

Adult ♂ (Aug. 22, 1898). Total length (measured in

flesh) 4.25 inches, wing 2.3, tail 1.8. Iris lemon-yellow ; bill, legs, and feet black.

Adult ♂ (Oct. 11, 1898). Total length (measured in flesh) 4.23 inches, wing 2.2, tail 1.7.

Adult ♀ (Aug. 1, 1898). Total length (measured in flesh) 4.5 inches, wing 2.3, tail 1.9. Iris yellow.

116. ERYTHROCERCUS FRANCISCI (Sclater fil.).

This interesting little Flycatcher was described by Mr. W. L. Sclater at the British Ornithologists' Club in June 1898, from Inhambane, Portuguese East Africa (see Bull. B. O. C. vol. vii. p. lx). We obtained our two specimens near Zumbo and in thick wood close to the river. They were very silent, continuously flitting from one high tree to another, and as they did so looking much like a pair of miniature Redstarts, their red tails in flight being very conspicuous. After obtaining these two specimens, we constantly looked out for the species again, but never noticed it till we reached the mouth of the Kafue river, where on June 8 a single specimen was observed in company with some other small birds.

Livingstone obtained an example of a species (*E. livingstonii* Finsch & Hartl. *) on the Zambesi which is very similar to our bird, though lacking the black spots on the tail ; but since Livingstone's specimen is, in my opinion, nothing more than an immature bird, it is highly probable that *E. francisci* is the adult of *E. livingstonii*.

Adult ♂. Total length (measured in flesh) 4.25 inches, wing 1.9. Iris black ; upper mandible brown, lower horn-colour ; legs and feet brown.

Adult ♀. Total length (measured in flesh) 4.57 inches, wing 1.8. Soft parts as in male.

117. TERPSIPHONE PERSPICILLATA (Swains.).

Not numerous, and is migratory to a great extent in the Zambesi region. In November the males had their long rectrices well developed, when the green gloss also disappears

* Cf. Sharpe, Cat. B. iv. p. 298, pl. ix. fig. 2.

from the throat, sides of the face, and fore-neck. In old males the crown appears to become like that of the female.

Adult. Iris black; bill slate-colour; wattled eyelids blue; legs and feet bluish slate-colour.

118. *COTILE PALUDICOLA* (Vieill.).

A large colony of these birds was breeding in holes in a flat sandy stretch of ground close to the river, some 60 miles below Tete, at Umquasi, where we landed on August 1. The holes went a considerable distance into the ground, but were not deep, and were very tortuous.

A specimen shot off the nest had the upper parts brownish black, rump white, striated with brown, and underparts white.

119. *HIRUNDO RUSTICA* (Linn.).

From October 20 onward Chimney-Swallows kept on increasing in numbers, the adults appearing first and then the immature birds.

On December 28 we witnessed a remarkable flight. It was towards evening, and we were just able to reach a sandbank before a heavy storm came on. Large flocks of Swallows kept passing us, flying southward before the inky darkness of the rain-clouds.

When nearing Tete on January 29, we pitched our tent for the night close to a large reed-bed. Just before dusk, countless numbers of Swallows, all adult birds, appeared high in the air flying round in circles. Then, suddenly, they swooped down with a rustling sound of wings into the reed-bed close to our tent, where they stayed for the night, and when morning broke not a Swallow was to be seen.

120. *HIRUNDO SMITHI* Leach.

A well-distributed resident on the Zambesi and observed as far as the Kafue river. It builds its nest on the ledges and under the projecting eaves of rocks that border the river, and also on the roof-trees of the Kaffir huts, paying no regard to the inhabitants, flying in and out of the hut-doors, that are continually surrounded with Kaffir children.

On August 18 I found a nest, lined with Guinea-fowls feathers and containing four eggs. It was cemented to the side of a large rock overhanging a pool near the river. To get at the nest, it was necessary to swim across to it, but the pool was deep and ugly-looking, and my native boy did not half like the idea, talking of crocodiles, so I did not press him. The next day I shot a Guinea-fowl out of a flock close to this same pool, and the bird fell into the water; in a second it was drawn under by a crocodile.

The song of this species is pretty and Swallow-like, and often uttered from the tops of rocks in mid-stream.

By the time October had come, the young were abroad.

121. *HIRUNDO PUELLA* (Temm. & Schl.).

This Swallow is also a resident on the Zambesi. The nest is a curious structure. While at Zumbo in December we had an opportunity of examining one. It was cemented to the ceiling of an inhabited room of a house to which the birds gained ingress by means of the window, and they made a great fuss whenever this entrance was denied to them. The nest might be likened to a long-necked decanter sliced down its centre, the neck serving as a tunnel by which the birds reached the nest. The total length was about a foot, of which the tunnel took 3 inches, while the depth of the actual nest was 6 inches.

122. *HIRUNDO MONTEIRI* (Hartl.).

Not found on the lower reaches of the river, and it was not until we had left Chicowa that we fell in with this handsome Swallow. On October 19 a party was observed flying round a tall baobab-tree. Both in appearance and the manner in which they circled in the air, executing graceful curves without a beat of the wings, they reminded us very much of the larger Bec-eaters. The entrances of holes in the baobab-trees are generally chosen for their nests.

Near Zumbo, on December 2, we discovered a nest cemented to the bottom of a gaping fissure in the stout limb of a baobab-tree. It was rather a deep structure, and made of mud.

Adult. Total length (measured in flesh) 8·5 inches, wing 5·8. Iris hazel ; bill black ; legs and feet dark brown.

Our four specimens are all adults.

123. *CHÆTURA STICTILÆMA* (Reichen.).

Only once observed, near Zumbo on November 8, when a small party of six birds appeared and remained in the vicinity for two days, leaving again on the third day. The flight is remarkably powerful, while at the same time the white rump is very conspicuous.

Adult (Zumbo, November 8). Total length (measured in flesh) 5·5 inches, wing 5·7, culmen 0·3. Iris black ; bill, legs, and feet black.

124. *TACHORNIS PARVA* (Licht.).

Found in colonies along the river, but not numerous. On landing at a small Kaffir village near Senna, on July 22, we found a colony of these Swifts had taken possession of the palm-trees that grew close to the huts, around which they flew incessantly. They were evidently building, for numbers kept flying up into the cups of the palm-leaves, the next moment to dart away, and this went on without ceasing, a continued string of birds flying up to and down from the leaves of these tall coconut-trees.

125. *CAPRIMULGUS FOSSII* (Hartl.).

Found in a variety of places. Waste land partially overgrown with reeds near the river, localities covered with thick long grass, and open stony portions of ground in the thick woods were common to the Nightjar, which we frequently flushed during the daytime.

Senna, July 24.—Towards dusk a large number of Nightjars came abroad and flitted to and fro over some low-lying ground bordering the river. They would often alight on the native paths in front of us and then start up at our feet in a noiseless manner, only to pitch again a few yards ahead. And numbers kept flying backwards and forwards over a bed of thick fish-cane with a flower of a fluffy nature that no doubt attracted moths. The bottom of this cane-growth resounded with the clear croak of innumerable bullfrogs, and when it

grew dark the Nightjars chimed in with their grinding notes that sounded very loud in the still air and were at times in perfect unison. This bird lacks the call-note of our Nightjar (*C. europæus*). Breeding takes place towards the end of September.

Our specimens vary in measurements, while the plumage of one is very pale in colour, being a light sandy-rufous all over.

Adult ♂ (Chicowa). Total length (measured in flesh) 9·75 inches, wing 6·7, tail 5·1.

Adult ♂ (Chicowa). Total length (measured in flesh) 9·65 inches, wing 6·5, tail 5·6.

Adult ♀ (Chicowa). Wing 6·1 inches, tail 5.

Adult ♀ (Chicowa). Total length (measured in flesh) 8·7 inches, wing 5·8, tail 4·4.

Adult ♀ (Senna). Wing 5·7 inches, tail 4·3.

126. *COSMETORNIS VEXILLARIUS* (Gould).

This species is locally distributed along the river, frequenting in pairs more or less open spots in the woods where the sun can penetrate, or the reed-girt islands in the river itself. Just after dusk had fallen, we used to see this weird and decorative-looking bird suddenly appear as if from nowhere, floating through the air with a dancing buoyant flight towards the water's edge, to return a short time after and commence hawking after moths. We noticed that this species invariably went first of all to the water before embarking upon the serious work of catching its prey.

The breeding-season is in November, when the elongated primaries of the males become much worn.

127. *EURYSTOMUS AFER* (Lath.).

Plentiful and observed in small parties, in which the male sex predominated to a large extent. Breeds towards the middle of November, in holes in the baobab-trees, the males appearing not to share in the task of incubation.

On several occasions, when it became almost dark, we saw this bird still on the wing.

Adult. Bill yellow; iris hazel; legs and feet greenish brown.

128. *CORACIAS CAUDATUS* (Linn.).

One of the first birds to arrest the attention of the traveller as he journeys up the river. Fields where the marpela corn has been grown are a favourite resort, for there this bird may be observed making raids upon the locusts that infest the stalk-strewn ground, while the sawn-off tree-stumps that stand here and there afford it resting-places. This Roller is cunning and distrustful, and seldom allows of a close approach, while at the sight of gun-barrels the bird is off in double-quick time, flying high in the air till it becomes a mere speck in the sky, and by way of showing displeasure at being disturbed it screeches out a string of hoarse notes just as if it was suffering from a bad sore throat. Moreover, this Roller is quarrelsome, being a constant source of annoyance to the small birds that may happen to come within its reach, especially to the flocks of Weavers, which it takes a mischievous delight in darting at, as they go "swishing" past, obliging them, from their close formation, to form skirmishing order.

In the pairing-season, the male gives vent to his love-passion in a series of discordant cries as he waltzes in endless twists and turns round his consort in mid-air, sometimes leaving her in order to shoot vertically upward.

Holes in the baobab-trees are generally chosen for nesting-sites. Though this species is a resident along the Zambesi, its numbers during the winter months are comparatively few; but towards the end of December, when the rains commence, an influx may be noticed, and then soon after breeding takes place. Distribution is influenced to some extent by the movement of insect-life; and especially is this the case where big swarms of locusts are present, in whose wake the Roller is sure to follow.

129. *CORACIAS MOSAMBICUS* (Dresser).

A rather scarce bird, and only met with at Chicowa. It is less noisy and more retiring in nature than *C. caudatus*. A specimen at the time of being shot was feeding off the fruit of the jujuba-tree which is called "masau" by the natives.

The stomach of one bird contained caterpillars, portions of centipedes, and locusts.

Adult. Bill black ; iris brown ; legs and feet greenish brown.

130. MELITTOPHAGUS MERIDIONALIS (Sharpe).

About one of the first species we collected. It is well distributed all along the river, and chiefly found in the vicinity of reed-beds near the banks, and in open spots in woods where the grass is long. This elegant little Bee-cater seldom heeds one's approach, merely swooping with a single beat of its wings upon the back of the next stooping reed. It is a pretty sight to come across a party of these birds forming head-pieces to all the prominent grass-stalks, and to watch them catching their prey. A rapid dart forward, a snap of the beak, and then returning again to its former point of vantage, to gain which the bird performs a little circular flight, almost poising in the air at times, while the light plays upon the beautiful green of its back and catches the fawn-colour of the wings till they look quite transparent.

When the breeding-season approaches, they all repair to a steep portion of the river's bank and nest in the holes of the previous season. These holes generally run to a depth of two feet. Near Zumbo my native boy found a nest containing five young ones on November 20, and then about a month later, on our way to the Kafue river, the young were abroad, sitting in rows on bending stalks and tree-twigs after the manner of Swallows, and watched over by their parents.

131. MELITTOPHAGUS BULLOCKOIDES (Smith).

Much addicted to haunting thick-wooded localities near the river, where the trees are numerous and tall. It is not abundant, never being seen in large flocks, and is of a retiring nature. These Bee-eaters are in the habit of congregating towards sundown on the topmost twigs of leafless trees, whence they utter incessantly low harsh notes that are at times almost in unison.

During the day this bird basks a great deal in the sun, but at times it can be too hot even for him, and you will find him, with beak wide open, literally panting with the heat.

The food of this species consists chiefly of various beetles. The stomachs of many specimens that we procured contained nothing but these insects.

On August 1, near the village of Umquasi, some 60 miles below Tete, a bird was observed with building material in its beak; this species often breeds in company with *M. natalensis*.

132. *MEROPS APIASTER* (Linn.).

On October 28 we saw for the first time a flock of this species beating down the river at a rapid rate, and another flock two days later.

133. *MEROPS PERSICUS* (Pall.).

It was not till after the first rain had fallen (November 21) that we observed these Bee-eaters, which suddenly appeared in small parties of five or six and frequented the tops of the tall acacia-trees, whence they uttered their peculiar notes—a weak rattle. The majority were adults, the feathers of the upper parts becoming blue.

134. *MEROPS BOEHMI* (Reichen.).

Rare. We observed it in only one locality, some 60 miles below Tete, on the left bank, and where the country was thickly wooded. We landed here on August 1, and while forcing our way through the thick undergrowth we came across a few of these elegant little Bee-eaters. It was towards evening and they were very busy catching their prey, darting frequently straight up from their perches with a “whirring” sound of wings, followed by a click of beaks whenever prey was caught, and then graceful circular swoops down to their perches again. This bird is shy and retiring by nature, and seeks a home in the little natural clearings that are common in the thick woods.

Adult. Wing 3·14 inches, culmen 1·1, tail 3, centre tail-feathers 5·7. Iris red.

135. *MEROPS NATALENSIS* (Reichen.).

Our first observation of this beautiful Bee-eater was just above Senna, where the Shiré river joins the Zambesi. Our steamer, towards evening, had stuck on a sandbank, and

during the tedious work of getting her off we took a canoe to explore a small island that was overgrown with long dead grass and masses of fish-cane. In our ramble, our attention was attracted to another little reed-grown island some 100 yards distant in mid-stream.

The reeds were literally festooned with the bodies of Bee-eaters and bending under their weight. Most of the birds were already asleep, and the reports of our guns threw them suddenly into confusion, many clinging to the reeds, hardly realizing what had taken place. Soon a great sight met our eyes. Shaking themselves free of the reeds, these birds, some 300 in number and glorious in their feathered coats of scarlet, mounted into the air, and were soon bathed in the last glows of a setting sun. They massed themselves together after the manner of Starlings, making all the time a great noise, in a single note that closely resembled the cry of the Fieldfare. Many times they advanced towards their favourite little island of rest, but only to retreat, and it was not until our canoe had left that the leaders of this great flying column of feathered redcoats proclaimed a halt for the night.

From Senna to the Kafue river we constantly observed in certain localities flocks of these Bee-eaters.

During the winter months, partial migrations occur to and from different reaches of the river, these movements being influenced to a great extent by the yield of insect-life.

Essentially river-birds, they never stray very far from water. Dried-up watercourses that are studded with pools, and flat reedy land interspersed with tall trees, are their resorts; and more than once during the day, generally in the early morning and again towards evening, they may be observed journeying from one favourite feeding-ground to another, flying high overhead, sometimes being invisible, and betraying their line of flight only by their cries, which sound at a height very ventriloquial.

During the heat of the day this Bee-eater will remain for hours inert, being quite indifferent to a near approach. A gloriously-coloured bird it appears as it sits perched on the stooping back of a bright green reed. It has indeed a

decorative appearance, and reminds one of those types of birds that the Indian loves to depict upon his choicest silks.

Towards evening the bird wakes up from its lethargy and takes up a post close to the riverside, whence it skims over the smooth water after insects, often striking the surface so as to send up a cloud of spray.

On November 1, not far from Zumbo, we came across a nesting-station of this species. The holes, which were very numerous, were in a steep portion of the river's bank. On nearing the colony, these holes began to bristle with long pointed bills, then feathered heads were poked out, a movement soon followed by a general exodus of these birds, which, with their peculiar crying notes, thronged out to the river in hundreds and then up into the blue sky, circling round and round like a flock of Rooks, the light, as they passed and turned, playing upon their brilliant plumage. It was a fine sight and not easily to be forgotten.

These birds were breeding. The holes ran very deep into the bank, about 3 feet in, and we had no appliances for digging them out.

The last important observation on this species from my diary runs as follows:—"December 23, 60 miles from the Kafue river. Country open, hills receding much from the river. Large numbers of Bee-eaters (*M. natalensis*) flying high overhead, from time to time stopping to circle after the manner of Rooks. They must be on migration, since a high flight is always then resorted to"

136. UPUPA AFRICANA (Bechst.).

Seen occasionally in pairs, from November onwards, on the higher reaches of the river.

137. IRRISOR VIRIDIS (Licht.).

Generally observed in small flocks, but not common. Moults in August. By the end of October breeding had commenced. The feathers then had a strong and disagreeable odour.

138. RHINOPOMASTUS CYANOMELAS (Vieill.).

A scarce bird, observed either singly or in pairs, and travelling through the woods with a Magpie-like flight. They are silent birds and are always busy destroying the freshly-opened buds of the trees with their scimitar-like bills, and when thus employed they have a pretty way of hanging from underneath the branches. We obtained an immature bird on August 22, while in December the adults were undergoing their moult.

139. BUCORVUS CAFFER (Bocage).

Seen only once, but not obtained.

140. BYCANISTES BUCCINATOR (Temm.).

Observed near Shupanga in company with *B. cristatus*, but only one specimen procured. It was seen at rare intervals in small parties and generally towards evening as it journeyed from the thick woods to the river, where it roosted in the deciduous trees lining the bank. We could always tell when these birds had started from their close daytime retreats on their journey towards the water, which was accomplished in stages, by their loud peculiar cries, that could be heard at a great distance and might be likened to the bleat of a lamb. It is a comical sight to see one of these birds alight on the top of a tree. Its heavy bill and enormous casque cause it almost to topple over, but the bird just saves itself by bringing down its strong and flexible tail to a sharp angle.

Adult ♂. Bill and casque blackish; iris brown; soft parts pinkish flesh-colour; legs and feet dark brown. In life, the end of the casque behind the eye is soft and almost pulpy.

141. LOPHOCEROS MELANOLEUCUS (Licht.).

Common. Frequenting in parties belts of thick deciduous trees lining the river's bank, and flying forward in batches on one's approach with an out-and-in flight. The alarm-note is squeaky and weak for the size of the bird.

This Hornbill is very fond of the "masau" apple (jujuba-

tree), these trees affording the bird a good supply of food throughout the winter months.

Adult ♂. Total length (measured in flesh) 20·6 inches, wing 9·8. Bill red, darker along cutting-edge, band at base creamy yellow; iris lemon-yellow; legs and feet dark brown. Contents of stomach, locusts.

142. *LOPHOCEROS EPIRHINUS* (Sundev.).

Rare. This species was probably breeding in September, since only males were obtained. The cry is a shrill whine.

Adult ♂. Total length (measured in flesh) 19·12 inches, wing 8·7. Iris hazel; bill black; streak and ridges creamy white; legs and feet brown.

143. *LOPHOCEROS ERYTHORHYNCHUS* (Temm.).

We devoted a good deal of our time and patience to getting together a collection of all the Hornbills of the Zambesi region, none of which can be called common; but this species is perhaps the most numerous. We met with it in fair numbers near Tete and again at Chicowa. The birds were in flocks and were as shy and wary as they could be, giving us little opportunity of approach within gunshot. But eventually, after several futile attempts to obtain specimens by walking towards them, we got to know the particular trees to which they used to repair on the approach of danger, and by hiding near one of these favourite resorts and having the birds driven towards it we procured a very fair number of specimens of both sexes, and chiefly adult birds. The vicinity of water is essential to this species.

During the cool of the morning and evening they used to troop down to the river as regular as clockwork, and then back again to their old haunts, which are seldom deserted for others. The confines of thick woods where the undergrowth is small and interspersed with high baobab-trees are favourite localities. And in the holes of these baobabs they spend most of the day, for they appear to dislike the heat very much. On the approach of the pairing-season in November, they scatter and hide themselves away in thick woods, often filling these silent places with their peculiar

love-cries, which I cannot do better than liken to the "chucking" notes of an amorous farmyard cock. Furthermore, these notes are ventriloquial, for at times it is puzzling to discover the whereabouts of the utterer. The bird has a characteristic flight. A few rapid beats of the pinions, and then follows a long glide through the air, without the slightest motion of the wings; but should an object arouse the suspicion of the bird, the wings are again rapidly beaten and a vertical soar upward is often performed. An observer can always tell exactly for which tree the bird is making, though a considerable distance may intervene, since a direct bee-line is invariably taken. When alighting on a tree, its heavy bill appears to make it top-heavy, for the bird almost topples over, the tail at the same time assuming a vertical position, the next moment to be sharply brought down, whereby equilibrium is regained. As it sits on the knotty bough of some leafless baobab-tree it looks indeed comical, all bill, neck, and tail, with a body no larger than our Black-bird's, reminding one forcibly of the hieroglyphics of ancient Egypt.

This Hornbill does a great deal of good, inasmuch as its principal food consists of locusts and injurious beetles. The gizzards of many we dissected were crammed full of these insects.

Adult ♂. Total length (measured in flesh) 20 inches, wing 7. Iris pale lemon-yellow; bill dark claret-colour, almost black at base of lower mandible; legs and feet brown.

Adult ♀. Total length (measured in flesh) 19·5 inches, wing 6·7. Colours as in male.

144. LOPHOCEROS LEUCOMELAS (Licht.).

A rather scarce bird.

Adult ♂. Total length (measured in flesh) 19·65 inches, wing 7·6. Bill orange-yellow; end of bill and cutting-edge of mandibles reddish black; legs and feet dark brown; iris lemon-yellow.

Adult ♀. Total length (measured in flesh) 17·8 inches, wing 6·7. Colours as in male.

145. *CERYLE RUDIS* (Linn.).

This species is more numerous below Tete than it is beyond. To the traveller, as he glides down the river in his canoe, these birds soon become a familiar sight, as they sit on the protruding roots of the steep banks, the ruddy-brown colour of which sets off to advantage their chequered plumage of black and white. This Kingfisher is indefatigable in searching after prey. Hard by a great stretch of glaring hot sandbank deserted by even the wading fraternity, it may be seen throughout the day hovering in mid-air, and shifting constantly its position to more likely spots. Many a time it will dart down into the water like an arrow, and then rise up again without catching anything; but it goes on as persistently as ever, till its efforts are rewarded with success.

We once witnessed a pretty example of solicitude towards its mate on the part of this bird. The male was the first to attract our attention as it hovered, with long beak pointed downward, over a shallow portion of the river after the manner of a Kestrel. After a sudden closing of the wings, followed by a little cloud of spray, it rose the next moment from the water with a fish in its beak. The bird then immediately flew towards an old snag in mid-stream, where the female was perched, patiently awaiting the return of her consort, whom she now welcomed with a tremulous fluttering of her wings. Then the male proceeded to despatch the still wriggling fish by beating it backward and forward against one of the thickest roots, after which the fish disappeared down the female's throat.

This method of killing its prey, which renders it in better condition for swallowing, is constantly resorted to, especially when the fish is large, as it was in this instance.

146. *CERYLE MAXIMA* (Pall.).

Single individuals now and then were observed.

147. *CORYTHORNIS CYANOSTIGMA* (Rüpp.).

Common.

148. *ISPIDINA NATALENSIS* (Smith).

Not often noticed, and more retiring by nature than the preceding species, frequenting thick places near the river.

An adult female obtained on January 10 had the breeding-organs largely developed.

149. *HALCYON FALLIDIVENTRIS* (Cab.).

Common. Both adult and immature specimens obtained.

150. *HALCYON ORIENTALIS* (Peters).

Towards the end of November, the time of pairing, these Kingfishers become very noisy, and much rivalry exists among the males on account of the females. The following observation is from my notebook:—"Nov. 26. Observed three Kingfishers (*H. orientalis*). They were making a great noise, two males courting the one female. The males frequently uttered shrill notes, followed by a loud running chatter, which resounded among the trees. Now and again one of them would face the female and spread out his wings to their full extent, and then, as if to show off their beauty, he would quickly turn his back upon her, the wings all the while fully outstretched, the beautiful blue wing-bands showing out to advantage, and the next moment he would face her again. This movement was repeated without intermission, as if the bird was on a pivot."

Adult ♂. Total length (measured in flesh) 11 inches; wing 4.1; culmen 1.8; tail 2.9. Iris brown; bill, legs, and feet coral-red.

Adult ♀. Total length (measured in flesh) 9 inches; wing 4; culmen 1.8; tail 2.8. Colours as in male.

151. *HALCYON CHELICUTENSIS* (Stanl.).

Well distributed.

152. *COLIUS STRIATUS* (Gm.).

Found on the lower reaches of the river from Tete downward; beyond that town its place appears to be taken by *C. erythromelon*. These birds frequent in bands the thick tops of tall bushes, and they so entangle themselves in the maze of twigs that they often find it a matter of great

difficulty to extricate themselves on the approach of danger ; in fact sometimes they keep quite still, preferring to lie "dogo." During the hush that follows the exodus of other birds from the tree, an individual of the band, thinking danger past, will creep cautiously to one of the topmost twigs and cling to it lengthwise after the manner of a Woodpecker, the others in the meantime keeping up a confused chattering within their leafy retreat. Then, on the sounds of fresh disturbance, they one and all break cover with a great rush, spreading out into a fan-shape, soon, however, to reunite into a compact wedge-shaped body and to travel straight as an arrow to their next thiek retreat, all the while giving vent to their chattering notes. These birds love company, and are always, even in the breeding-season, to be found in bands, for while the females undertake the task of incubation, all the males may be observed travelling from one favourite spot to another, and keeping close together as if they were afraid of being attacked.

During our stay at Inhambane, we remember seeing a number of these birds clustering round the fruit of a large-leaved tree (*Terminalia catappa*) common to the locality. It was a remarkable sight to witness them all scrambling together and hanging from a single fruit, and reminded us forcibly of a litter of young pigs being suckled by their mother.

Adult ♂, near Tete (August 4). Sexual organs in breeding condition. Wing 3·6 inches, culmen 0·5, tail 8·1. Iris dark hazel ; upper mandible black, lower light horn-colour, bluish at base ; legs and feet pale claret-colour. In old males the lower mandible is entirely of a dark bluish horn-colour.

153. COLIUS ERYTHROMELON (Vicill.).

By no means common, and first observed on November 10 near Chicowa. In habits they resemble *C. striatus*, travelling about in small parties and keeping chiefly to the thickest portions of well-leaved trees, away from the heat, which they seem to feel very much, becoming active only in the early morning and evening. The cry, generally uttered on the

wing and when in flock, is a series of notes rapidly repeated and in sound far-reaching and mellow. The specimens that we obtained near Zumbo in November are in splendid plumage, and are all males; and though we tried hard to get females, we found the parties of these birds consisting entirely of the male sex.

This bird has a strong and straight flight, and it seldom, if ever, alights on the ground.

Adult ♂ (Zumbo). Total length (measured in flesh) 11·6 inches, wing 3·64, tail 8·6. Iris hazel; bill black, base of upper mandible pink; soft parts coral-red; legs and feet pinkish red.

154. *GALLIREX CHLOROCHLAMYS* (Shelley).

A scarce bird along the Zambesi, which is the southernmost range of this species. Two females were met with on October 28 below Zumbo.

155. *SCHIZORHIS CONCOLOR* (Smith).

Common. During a day's trek through more or less open country, a party of four or five individuals may always be observed travelling from one belt of trees to another with a lazy, lackadaisical flight. The Grey Plantain-eater is a tiresome bird. The hunter often has occasion to curse it freely, since he stands little chance of approaching game should one of these birds be in the vicinity of his path. From the top of some tall tree it will utter in a most persistent manner its alarm-cry, which is gruff and wheezy and much drawled out, and might be likened to the words "Oh, why?" "Oh, why disturb me?" it seems to say. The bird also has a peculiar call-note, a groaning grunt, just as if it was going to suffer from an acute attack of illness.

Holes in the baobab-trees are generally chosen as nesting-sites. On November 10 we shot a young bird which was just able to fly.

156. *CENTROPUS NATALENSIS* (Shelley).

Found near Tete. On the higher reaches of the river *C. superciliosus* takes its place.

157. *CENTROPUS SUPERCILIOSUS* (Hempr. & Ehr.).

Common where there are tracts of tall grass and reed-beds, but less plentiful on the higher reaches of the river. It appears to be a greedy bird; the stomachs of several obtained were much distended with food, which consisted chiefly of locusts.

This bird puzzled us considerably at first. Its rich bubbling notes, ventriloquial and capable of being heard at a great distance, kept mocking us on many occasions, and it was not till we had made an ambush in a reed-bed one evening that we discovered the utterer of these remarkable sounds. The bird seldom makes use of flight except to wing its way from one thick retreat to another. Then it flies in a clumsy manner, flopping above the tall reed-heads, the next minute to drop in an ungainly way into the bottom-growth, conveying to the observer the idea of much effort, as if to overtop the reeds was all that the bird could manage.

It is seldom seen throughout the day, closeting itself in a thick portion of reed-growth, generally in the vicinity of water, whence it gives out at times its chord of bubbling notes. The best time to observe this Lark-heeled Cuckoo is when sunset is just closing in, and from an ambush near to water you will be able to watch it almost as closely as you like. Troops of Doves come down to the pool and take their last drink, and batches of Weavers pitch into the reeds with rustling flight for the night. Then comes a brief stillness, to be broken shortly by some creepy noise in mid-reed-bed, a tussling noise as of roots and thick growth being pulled aside. It is the Lark-heeled Cuckoo, which has begun its evening forage and is gradually approaching the open spot, wending its way in rodent fashion and with great agility through the columns of the reeds. On emerging into the open it does not neglect to reconnoitre, and accordingly creeps cautiously up one of the stoutest fish-canes overhanging the pool, till it bends under its weight; but there is nothing to cause it alarm, merely a lonely Sandpiper running along the pool's edge and a nimble Black Waterhen (*Limnocorax niger*) treading the soft carpet of

weed. Meanwhile, along the further confines of the reed-bed, several more individuals have crept out from their thick retreats in the same cautious manner, and they one and all commence to call the females to their sides, by uttering a series of deep mellow notes full of penetrative power, which might be described by the syllables "ho, ho, ho," each descending a tone in succession.

When the breeding-season approaches (about the end of October), these birds may frequently be heard throughout the day, and even in the middle of a moonlight night. While the river flows through a land of hushed silence, they are still wide-awake and answering one another with their far-reaching mellow notes, that now and again become rapid in utterance, just like the sound of water bubbling from a long-necked jar. And the silence only tends to enhance the beauty of these notes; so rich and so full of soft love-passion are they that one cannot help exclaiming "How good a thing it is to live in this land of nature!"

158. *COCYSTES JACOBINUS* (Bodd.).

As soon as the first rain had fallen and the trees had begun to put on leaf, this species appeared in pairs. We observed the first at Zumbo on November 15, after which date they became numerous and noisy, uttering when on the wing loud penetrating notes exactly similar to the alarmery of the Green Woodpecker.

159. *COCYSTES HYPOPINARIUS* (Cab. & Heine).

An adult male on November 8: Zumbo.

160. *COCYSTES CAFER* (Licht.).

First seen on November 22 near Zumbo, when a male was obtained with its sexual organs in breeding condition.

161. *CUCULUS CANORUS* (Linn.).

First observed and obtained on November 30, an immature male with plumage much in quill, and subsequently on December 27 a female of the hepatic type.

162. *CUCULUS CLAMOSUS* (Lath.).

An adult male on December 26. Throughout the day the males kept calling for the females. The cry is a loud, clear, long-drawn whistle, and might be described by the syllables "tu, tu, tui"; but is sometimes uttered quickly, sounding then like "too, too," constantly repeated.

163. *CHRYSOCOCCYX SMARAGDINEUS* (Swains.).

An adult male near the Kafue river, on January 8.

Total length (measured in flesh) 8 inches, wing 4.3. Iris brown; eyelids and bill greenish; legs and feet slate-colour.

The cry, which is uttered from the top of some tall leafy tree, is clear and musical, and can be heard at a long distance.

164. *CHRYSOCOCCYX CUPREUS* (Bodd.).

The males of this species were first seen on October 14; the females appeared later.

The cry, which is plaintive, is uttered by the male from the top of some high tree, and might be described by the syllables "tu, tu, tu, tui."

[To be continued.]

VIII.—*On a Collection of Birds obtained by Mr. H. S. H. Cavendish in Mozambique.* By R. BOWDLER SHARPE, LL.D., F.L.S., &c.

DURING a short visit to Mozambique in the autumn of 1898 Mr. Cavendish, so well known for his adventurous expedition to Lake Rudolf in 1896-97, made a small collection of birds near Beira and at Mapiuti in the Cheringoma District. Mr. Cavendish was accompanied by Mr. W. Dodson, who preserved the specimens with his usual care. Examples of several interesting species were procured, and it is impossible to help regretting that the collection was not larger, since, small as it is, it has added considerably to our knowledge of the range of some of the species which are enumerated in the following list.